

REMARKS

This is a full and timely response to the Office Action mailed December 1, 2004.

By this Amendment, claims 1-9 has been canceled without prejudice or disclaimer and replaced with new claims 10-16. Support for the new claims can be found variously throughout the specification and the original claims.

In view of this Amendment, Applicants believe that all pending claims are in condition for allowance. Reexamination and reconsideration in light of the above amendments and the following remarks is respectfully requested.

Rejection under 35 U.S.C. §112

Claim 1-9 are rejected under 35 U.S.C. §112, second paragraph, for alleged indefiniteness. Applicant respectfully traverses these rejections.

However, in the interest of expediting the prosecution of the present application, Applicant has rewritten the claims to address the Examiner's concerns.

Thus, in view of the new claims, withdrawal of this rejection is respectfully requested.

Rejections under 35 U.S.C. §103

Claims 1, 2 and 4-7 are rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Anderson et al. (U.S. Patent No. 5,830,548). Further, claim 3 is rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Anderson et al. (U.S. Patent No. 5,830,548) in view of Papsin Jr. (U.S. Patent No. 6,281,298). Applicants respectfully traverse these rejections.

To establish a *prima facie* case of obviousness, the cited references, either alone or in combination, must teach or suggest the invention as a whole, including all the limitations of the claims. Here, in this case, Anderson et al., fail to teach or suggest the limitations "*natural fiber and polylactic acid resin mixed in said natural fiber as a binder*" and "*said fiberboard*

(1) *having a density of 0.2 g/cm³ or more,*

(2) *comprising an initial bending strength of 30 MPa or more, said bending strength being calculated in accordance with the following expression*

$$\text{bending strength (MPa)} = 3PL / 2Wt^2$$

wherein P is the maximum bending load (N) to a test piece, L is the distance between fulcrums (mm) of the test piece, W is the width of the test piece (mm), and t is the thickness of the test piece (mm), and

(3) retaining 20% or more of said initial bending strength after subjecting said fiberboard to a high temperature of 50°C and a high humidity of 95% RH for 1,200 hours.”

Such deficiency in Anderson et al. is not cured by the teaching and suggestions of Papsin Jr. since the reference only teaches adhesives comprising a polycarbodiimide compound.

In the Office Action, the Examiner argues that the initial bending strength and retention rate are inherently taught or suggested, or obvious over the teachings of Anderson et al. and Papsin Jr. The Examiner bases his argument on the fact that natural fiber and polylactic acid resin are disclosed in Anderson et al. However, based on Applicant's review of the cited references, such a conclusion cannot be made.

Under U.S. case law, the fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic. *In re Rijckaert*, 9 F.3d 1531, 1534, 28 USPQ2d 1955, 1957 (Fed. Cir. 1993). In relying upon the theory of inherency, the Examiner *must provide a basis in fact and/or technical reasoning* to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art. In other words, the extrinsic evidence must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. Inherency may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient." *In re Robertson*, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999). Thus, the fact that Anderson et al. contains disclosures regarding natural fiber and polylactic acid resin is insufficient to establish the inherency of the initial bending strength and retention rate especially since the Examiner has not provide a basis in fact and/or technical reasoning to reasonably support the determination that the claimed initial bending strength and retention rate necessarily flow from the teachings of the applied prior art.

In order to obtain the initial bending strength and retention rate of the present invention, the mixture of the polylactic acid resin and natural fiber should be as homogeneous as possible. For example, in one of the preferred manufacturing process of the present invention, polylactic acid resin is melt-spun and formed into polylactic acid fibers which are mixed

together with natural fibers and processed to a sheet form product. The sheet form product is then molded by hot pressing.

In another preferred embodiment, the polylactic acid fiber can be crimped (see the specification, paragraph [0037], line 3 and paragraph [0046], line 2) and mix with the natural fiber to be strongly joined together. Also, in the mixing of the polylactic acid fibers and natural fibers, the different fibers can be aligned in a stretched state as when the fibers are subjected to combing (see paragraph [0046], line 5, of the specification). In combing, the fibers, originally in a curled state, become stretched or straightened, whereby molding the polylactic acid fibers and natural fibers in an oriented and aligned state is made possible.

By molding the fiberboard obtained from a homogeneous mixture of polylactic acid fibers and natural fibers, a fiberboard having a high bending strength and a remarkable retentivity of such strength can be obtained.

In contrast to the present invention, Andersen et al. only suggest a mixture of natural fiber and polylactic acid resin but not a mixture which allows for the initial bending strength and retention rate recited in the claims. In other words, Anderson et al. does not teach or suggest a manufacturing process for producing a homogeneous mixture of, for example, a polylactic acid fiber and a natural fiber in an oriented and aligned state prior to molding. Hence, it cannot be concluded that Anderson et al., either alone or in combination with Papsin Jr., inherently teach or suggest the high initial bending strength or remarkable retention rate of the present invention especially since, based on the explanation above, the claimed initial bending strength and retention rate cannot be determined to necessarily flow from the teachings of Anderson et al. and Papsin Jr.

It should also be noted that the Examiner cannot totally discount the arguments above for reasons that the claims are directed to a product while the arguments are related to a manufacturing process. As the Examiner already knows, under U.S. case law, a structure implied by a process should be considered when assessing the patentability of product-by-process claims over the prior art, especially where the manufacturing process steps would be expected to impart distinctive structural characteristics to the final product. See, e.g., *In re Garnero*, 412 F.2d 276, 279, 162 USPQ 221, 223 (CCPA 1979).

It is important to note, however, that other manufacturing processes are also possible and that the above exemplified processes should not be construed to limit the scope of the claims. The product claims are only limited by the claimed initial bending strength and retention rate,

and thus, should not be limited to any particular manufacturing process. This is due to the fact that the fiber form of the polylactic acid resin is lost upon the formation of the molded fiberboard product and as such, the manufacturing process relating to “polylactic acid fiber”, “crimping (crimped)” and “combing (combed)” should not be construed to limit the scope of the product claims.

Thus, for these reasons, withdrawal of this rejection is respectfully requested.

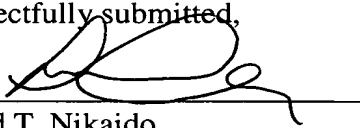
With regard to new claims 15 and 16 (corresponding to original claims 8 and 9), since these claims have not been rejected in any prior art rejection and since they have been rewritten to overcome the rejection under 35 U.S.C. §112, second paragraph, they should be deemed allowable.

CONCLUSION

For the foregoing reasons, the pending claims are allowable, and the present application is in condition for allowance. Accordingly, favorable reexamination and reconsideration of the application in light of these amendments and remarks is courteously solicited. If the Examiner has any comments or suggestions that would place this application in even better form, the Examiner is requested to telephone the undersigned attorney at the number below.

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Respectfully submitted,

By 
David T. Nikaido
Registration No.: 22,663

Lee Cheng
Registration No.: 40,949

RADER, FISHMAN & GRAUER PLLC
1233 20th Street, N.W.
Suite 501
Washington, DC 20036
(202) 955-3750
Attorneys for Applicant

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